FIG. 1

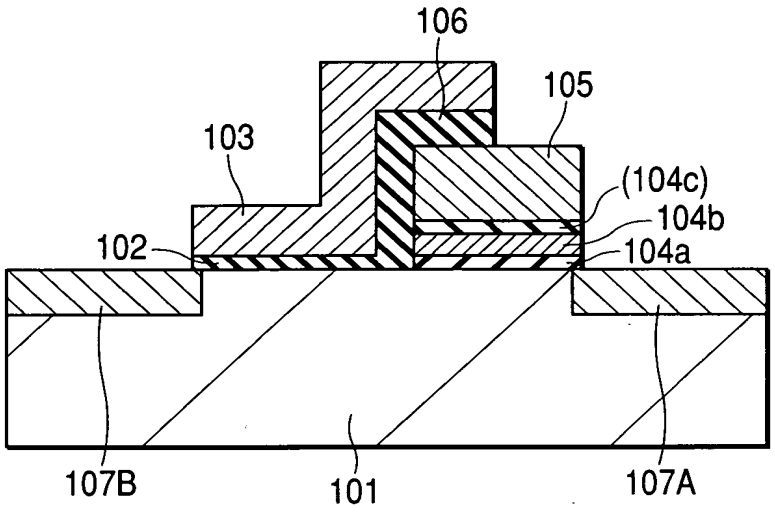


FIG. 2

	Vsg	Vmg	Vs	Vd	Vwell	METHOD (TECHNIQUE)
WRITE (INJECTION)	~Vt	10V	5V	0V	0V	SOURCE SIDE INJECTION
ERASE (DISCHARGE)	0V	VARIABLE	0V	0V	0V	TUNNELING
READ	1.8V	0V	0V	1.8V	0V	REVERSE READ
	1.8V	0V	1.8V	0V	0V	FORWARD READ

FIG. 3

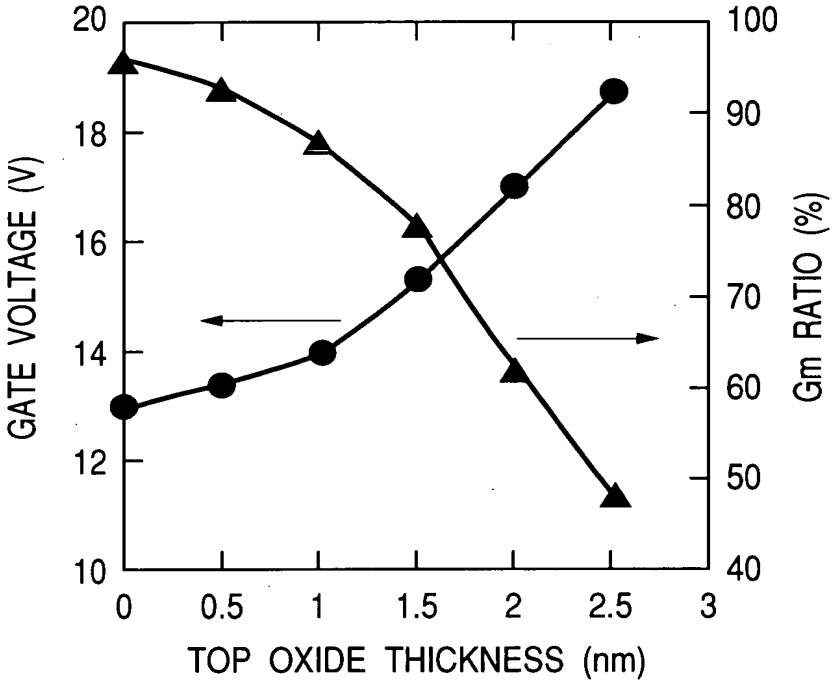

20
18
16
14
12
10
GATE VOLTAGE (V)
100
90
80
70
60
50
40
Gm RATIO (%)
0
0.5
1
1.5
2
2.5
3
TOP OXIDE THICKNESS (nm)

FIG. 4

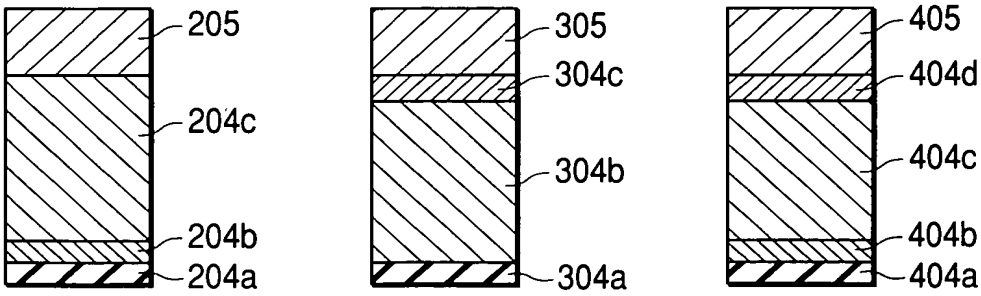

205
204c
204b
204a
305
304c
304b
304a
405
404d
404c
404b
404a

FIG. 5

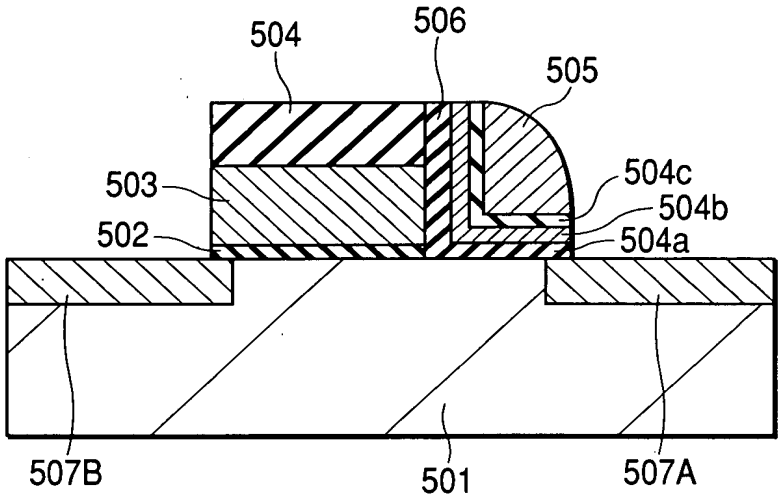


FIG. 6

	Vsg	Vmg	Vs	Vd	Vwell	METHOD (TECHNIQUE)
WRITE (INJECTION)	~Vt	10V	5V	0V	0V	SOURCE SIDE INJECTION
ERASE (DISCHARGE)	0V	−6V	0V	5~7V	0V	(HOT HOLE INJECTION)
READ	1.8V	0V	0V	1.8V	0V	REVERSE READ
	1.8V	0V	1.8V	0V	0V	FORWARD READ

FIG. 7

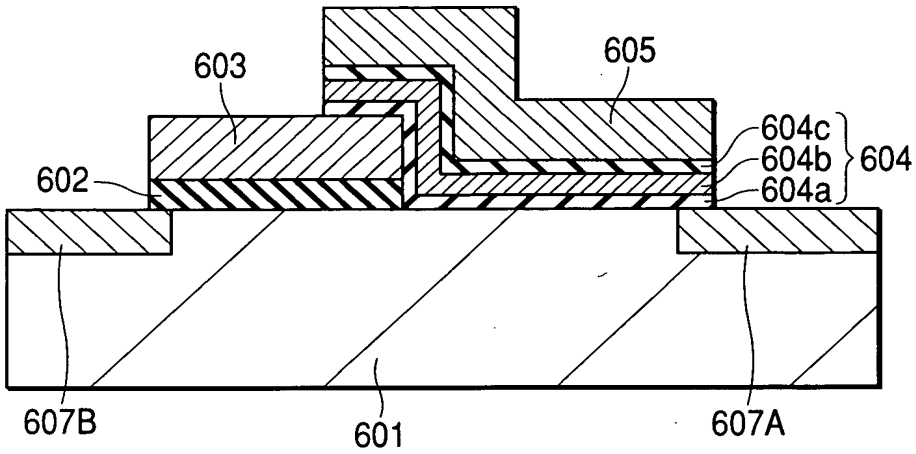

603
605
604c
604b
604
602
604a
607B
601
607A

FIG. 8

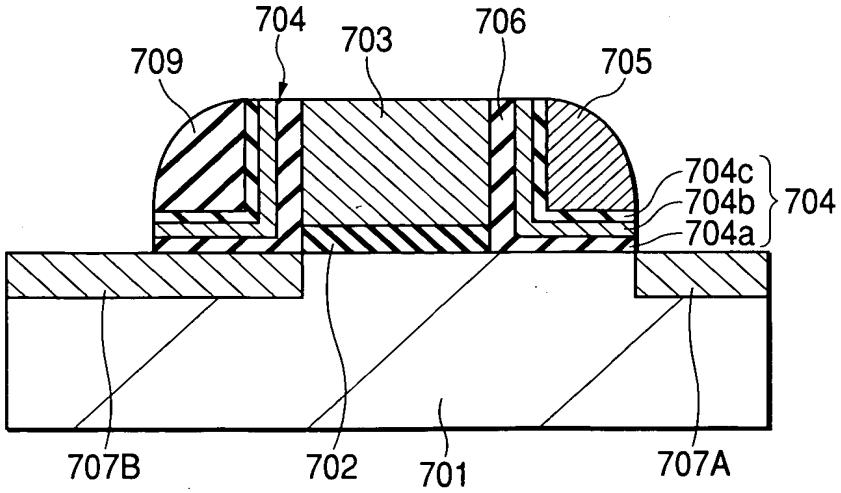

704
703
706
709
705
704c
704b
704
704a
707B
702
701
707A

FIG. 9

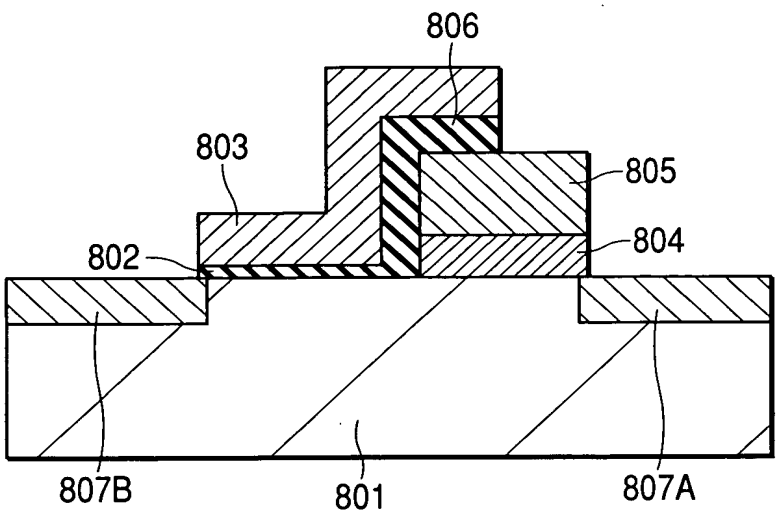

806
803
805
804
802
807B
801
807A

FIG. 10

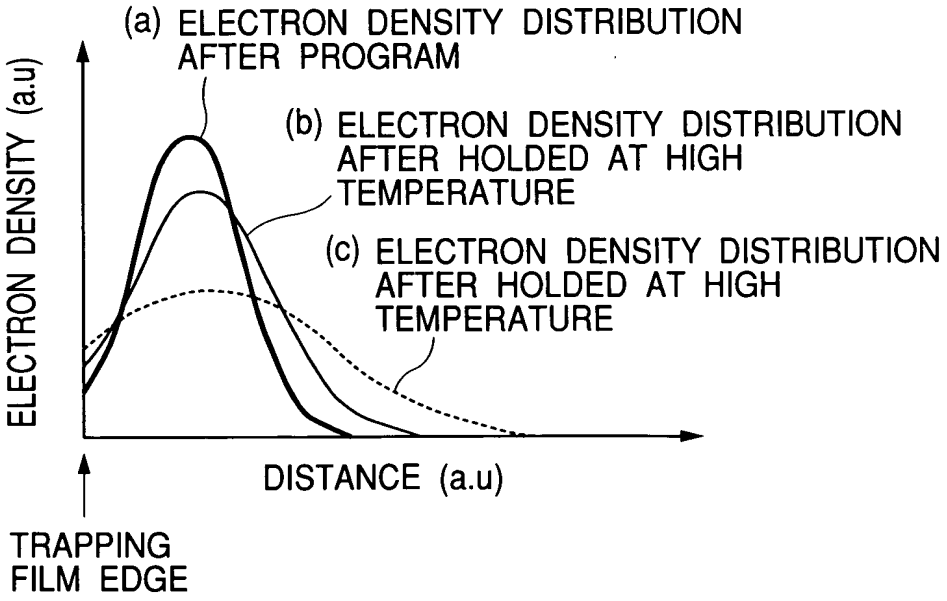

(a) ELECTRON DENSITY DISTRIBUTION AFTER PROGRAM
(b) ELECTRON DENSITY DISTRIBUTION AFTER HOLDED AT HIGH TEMPERATURE
(c) ELECTRON DENSITY DISTRIBUTION AFTER HOLDED AT HIGH TEMPERATURE
ELECTRON DENSITY (a.u)
DISTANCE (a.u)
TRAPPING FILM EDGE

FIG. 11

	STACK FILMS STRUCTURE		MAIN TRAPPING FILM	POTENTIAL BARRIER FILM	OXYGEN CONCENTRATION OF SiON FILM
1	SiO2/SiON		SiON	NONE	
2	SiO2/SiON/SiO2		SiON	SiO2	
3	SiO2/SiON/SiN		SiON	NONE	
4	SiO2/SiN/SiON		SiON	NONE	
5	SiO2/SiON(1)/SiON(2)	(a)	SiON(1)	NONE	SiON(1)>SiON(2)
		(b)	SiON(2)	NONE	
6	SiO2/SiN(1)/SiON/SiN(2)		SiON	NONE	
7	SiO2/SiON(1)/SiN/SiON(2)	(a)	SiON(1)	NONE	SiON(1)>SiON(2)
		(b)	SiON(2)	NONE	

FIG. 12

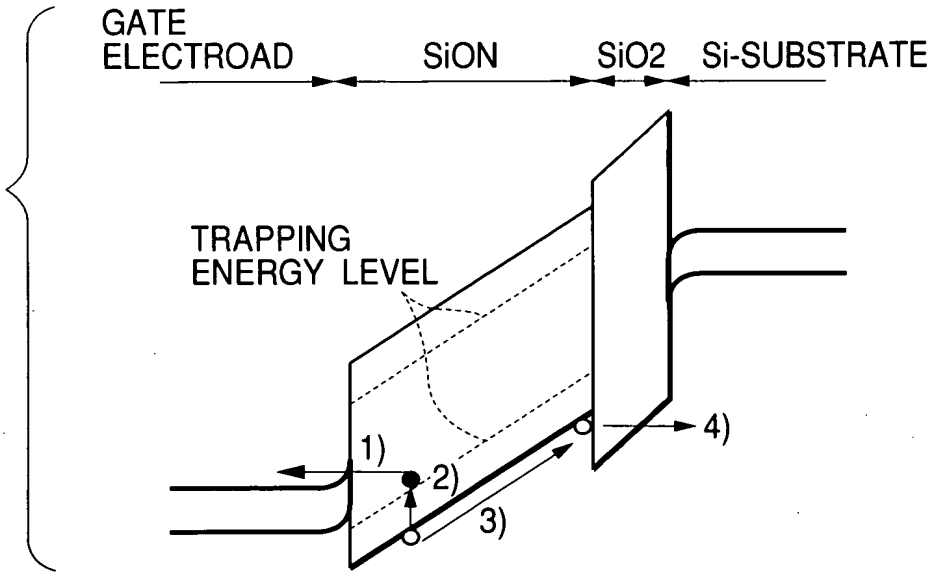


FIG. 13

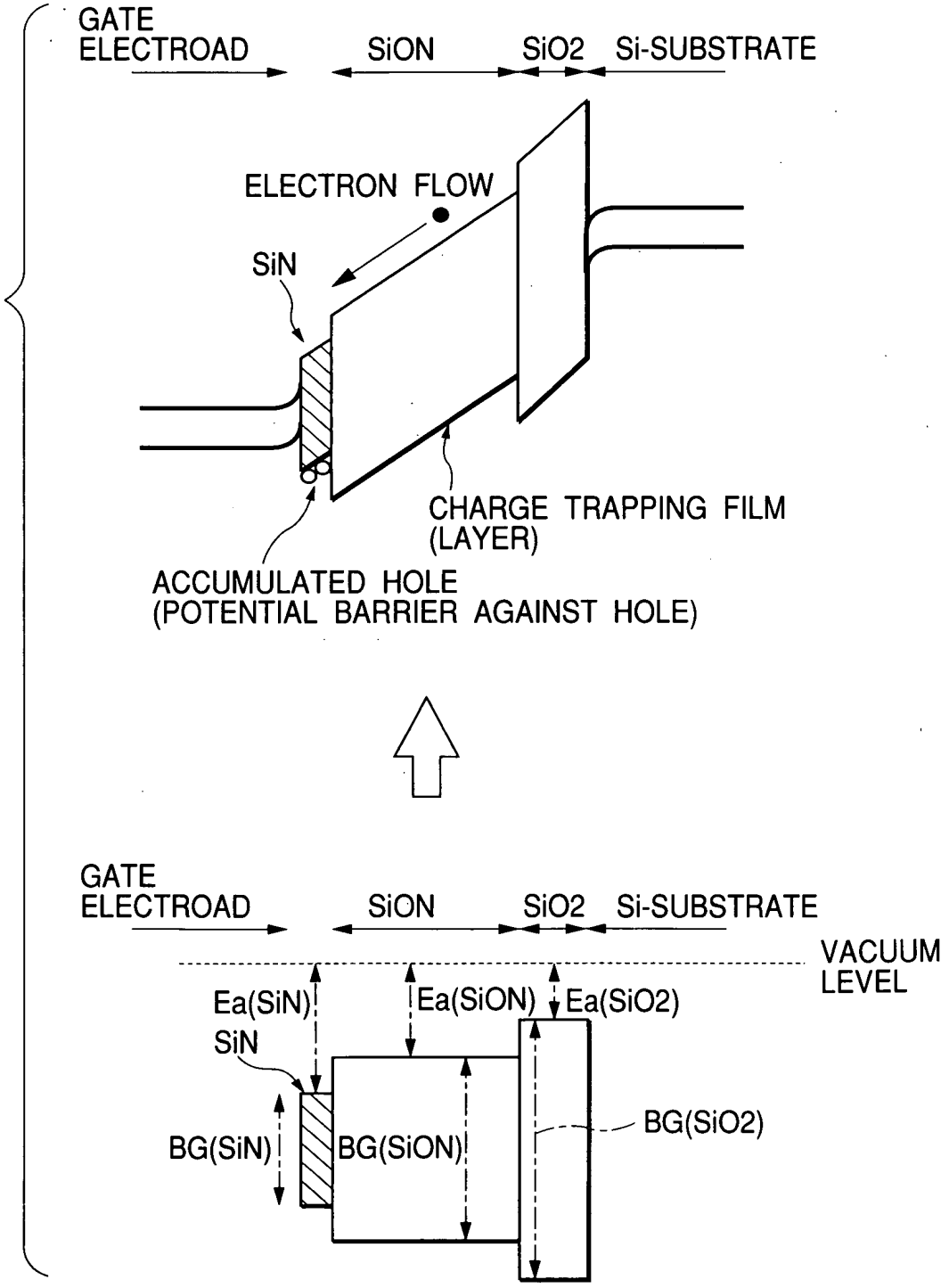

GATE ELECTROAD
SiON
SiO2
Si-SUBSTRATE
ELECTRON FLOW
SiN
CHARGE TRAPPING FILM (LAYER)
ACCUMULATED HOLE (POTENTIAL BARRIER AGAINST HOLE)
GATE ELECTROAD
SiON
SiO2
Si-SUBSTRATE
VACUUM LEVEL
Ea(SiN)
Ea(SiON)
Ea(SiO2)
SiN
BG(SiN)
BG(SiON)
BG(SiO2)

FIG. 14

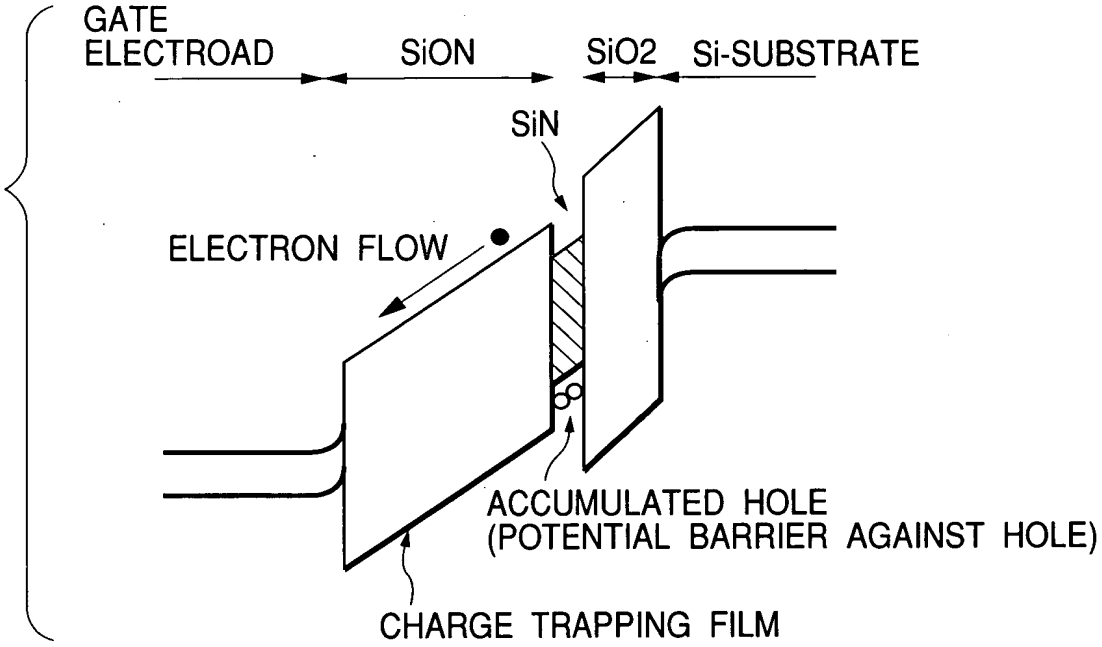
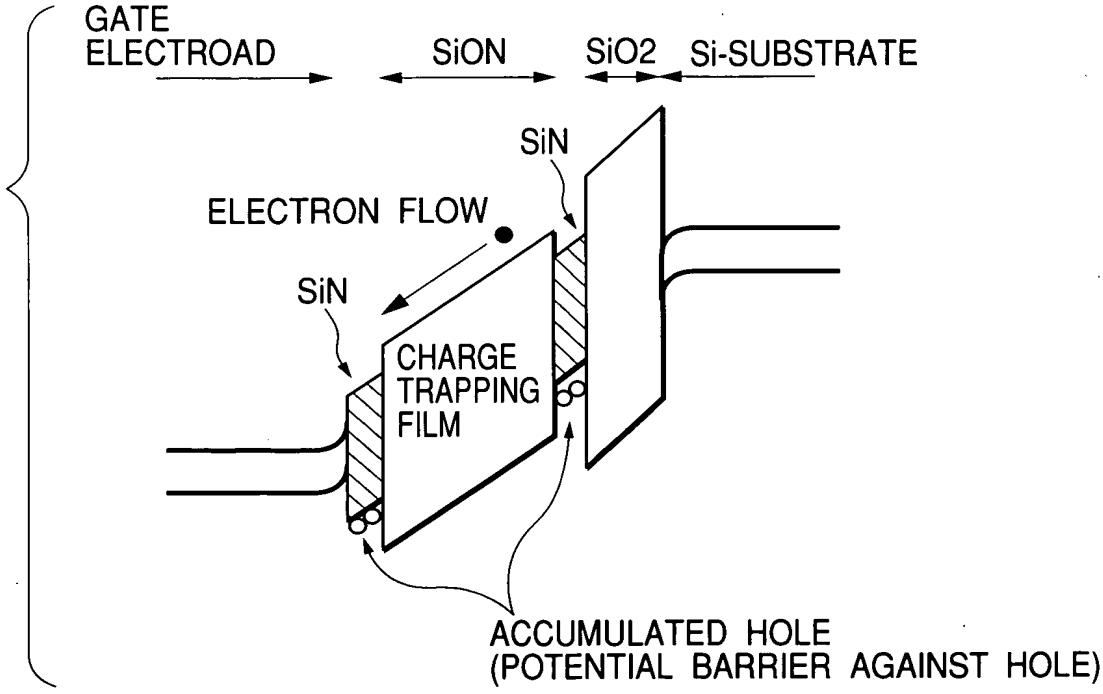

GATE
ELECTROAD
SiON
SiO2
Si-SUBSTRATE
SiN
ELECTRON FLOW
ACCUMULATED HOLE
(POTENTIAL BARRIER AGAINST HOLE)
CHARGE TRAPPING FILM

FIG. 15


GATE
ELECTROAD
SiON
SiO2
Si-SUBSTRATE
SiN
ELECTRON FLOW
SiN
CHARGE
TRAPPING
FILM
ACCUMULATED HOLE
(POTENTIAL BARRIER AGAINST HOLE)